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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,651	09/26/2003	Charles E. Lents	02-161A	8208
34704	7590	05/12/2004	EXAMINER	
BACHMAN & LAPOINTE, P.C. 900 CHAPEL STREET SUITE 1201 NEW HAVEN, CT 06510			DOERRLER, WILLIAM CHARLES	
			ART UNIT	PAPER NUMBER
			3744	

DATE MAILED: 05/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/672,651

Applicant(s)

LENTS ET AL.

Examiner

William C Doerfler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 37-58 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 37-48 and 50-58 is/are rejected.
- 7) ☒ Claim(s) 49 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9-26-2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 37-41, 43-47, 50-56 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams '103 in view of Brunskill.

Williams '103 discloses applicants' basic inventive concept, an air cycle cooling system which splits ram air, compresses one stream, cools the compressed air using the remainder of the ram air and uses the cooled compressed air to treat the air in an aircraft, substantially as claimed with the exception of using a precooler/reheater heat exchanger and a water separator to separate water droplets from the cooled air between the precooler and a cooling turbine. Brunskill shows this feature to be old in

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the air cycle cooling art. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of Brunskill to modify the air cycle cooling system of Williams '103 by using a second heat exchanger to transfer heat from the compressed air to expanded air and adding a water separator to remove water droplets from the air stream prior to passing through a turbine to improve the lifespan and efficiency of the turbine. Line 340 of Brunskill represents a bypass line with valve 342 controlling the amount of bypass air which is mixed with cooled air entering and being mixed in line 13. Williams' generator 7 is mounted on a second shaft with cooling turbine 9 and the electricity produced therefrom enters controller 11 before being used to power electric motor 3 which powers compressor 5. Line 51 of Brunskill transports water which has been separated from the cooled compressed air to the ram air which is used to cool the compressed air. Valve 22 of Williams shows the control of air leaving the cabin. In regard to claim 50 Brunskill shows valve 68 which controls a bypass for the compressed air to control the temperature.

Claims 42 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams '103 in view of Brunskill as applied to claims 37-41, 43-47, 50-56 and 58 above, and further in view of Cronin et al.

Williams '103, as modified, discloses applicants' basic inventive concept, an air cycle cooler which splits ram air into a compressed stream and a heat transfer stream, substantially as claimed with the exception of a recovery heat exchanger and mounting a turbine, compressor and electric motor on a common shaft. Cronin et al shows these features to be old in the air cycle cooler art with heat exchanger 24 recovering heat and

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figure 4 showing the common shaft. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of Cronin et al to modify the air cycle cooler of Williams by adding a recovery heat exchanger to improve the efficiency of the system by recovering energy that would be discarded in the form of thermally treated air and using a common shaft for the compressor, turbine and motor to conserve space.

Claim 57 rejected under 35 U.S.C. 103(a) as being unpatentable over Williams '103 in view of Brunskill as applied to claims 37-41, 43-44, 47, 50-56 and 58 above, and further in view of any one of Afeiche et al, Hipsky or Murry et al.

Williams '103, as modified, discloses applicants' basic inventive concept, an air cycle cooler which splits ram air into a compressed stream and a heat transfer stream, substantially as claimed with the exception of using a second turbine to expand the dry air. Afeiche et al, Hipsky and Murry et al each show this feature to be old in the air cycle cooler art. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of any one of Afeiche et al, Hipsky or Murry et al to modify the air cycle cooler of Williams by adding a second turbine to further expand the dry air to improve the control of the system by enabling a constant (or linked) rotation speed for one turbine while controlling the other to derive the desired temperature and pressure of the air.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11

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F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 37-47 and 50-58 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 6,681,592. Although the conflicting claims are not identical, they are not patentably distinct from each other because the current claims are broader in scope than the earlier patented claims. It is considered obvious to an ordinary practitioner in the art that features of the earlier claims could be eliminated at the cost of the benefits derived therefrom. The elimination of the power turbine for example, would make the system cheaper at a cost of improved control over the cooling system.

Allowable Subject Matter

Claim 49 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed 9-26-2003 have been fully considered but they are not persuasive. Brunskill's line 51 shows using separated water to precool ram air which

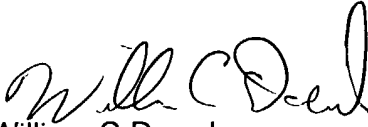
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is used as a heat sink. Brunskill also show the bypassing of a compressed stream to control temperature. While this may not be a stream from the compressor mixed with the expanded stream to control temperature, a mixing of the expanded stream and a stream from the compressed ram air has not been clearly claimed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C Doerrler whose telephone number is (703) 308-0696. The examiner can normally be reached on Monday-Friday 6:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Denise Esquivel can be reached on (703) 308-2597. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


William C Doerrler
Primary Examiner
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WCD